NOAA's National Climatic Data Center User Engagement Fact Sheet Sector: COASTAL HAZARDS

OVERVIEW

Global climate change and extreme coastal weather events pose an enormous challenge to the coastal hazards sector. The destructive potential of Atlantic hurricanes has increased in recent decades. In the future, hurricanes and other tropical storms—and the strong winds, heavy rains, and high seas that accompany them—are likely to become more intense. Sea-level rise is expected to continue and possibly accelerate over the next century and beyond. A rising sea level, combined with extratropical and tropical storms, poses an increasing threat to coastal cities, residential communities, infrastructure, beaches, wetlands, and ecosystems. Some potential impacts include increased flooding, inundation, and shoreline erosion. Reducing risk to human life and to a community's economic, social, cultural, and environmental assets from climate and weather-related events is a major concern. Climate changes and variations and extreme weather events occur at a variety of time scales, from hours to years. Having access to useful and timely information products and services that aid decision makers in reducing vulnerability and increasing resiliency is critical to protecting people and maintaining healthy ecosystems and robust economies.

KEY STAKEHOLDERS

NOAA's National Climatic Data Center (NCDC) works with various groups, both as an information provider and as an applied research partner, to examine the effects of weather and climate on coastal hazards. This helps decision makers within the coastal hazards sector establish practical responses to climate change and extreme weather events. There are many different governmental and non-governmental organizations, public and private groups and businesses, and individuals that can benefit from using relevant climate and weather-related information. Some major groups include:

- Federal, state, and local emergency managers
- Federal, state, and local mitigation planners and coastal resource managers
- Government agencies and non-government entities that support critical infrastructure and essential facilities, including energy, transportation, and communication
- Recreation and tourism groups and businesses
- Agriculture and fisheries industries
- Academia and other researchers, including meteorologists, oceanographers, and engineers
- Public- and private-sector weather forecasters

SECTOR NEEDS

Climate information is often available only as raw observations or in the form of tables, graphs, or written summaries, which may be difficult for users who are not well-versed in climate science to fully interpret. To bridge this gap, NCDC is partnering with the coastal hazards sector to translate climate data into accessible, useful, and accurate products; and to leverage NCDC's climate expertise to better understand what the information means and how it can be used most effectively.

Climate information can be used in a variety of ways. Some examples include:

- Using climate data related to frequency, intensity, and duration of extreme weather events, such as hurricanes, to assess potential mitigation and adaptation strategies.
- Using rainfall data to help develop coastal erosion control procedures for local construction projects.
- Using local climatology data to assist in the design and construction of homes and infrastructure that can withstand hurricanes, storm surge, and other extreme coastal weather events.
- Using tide gauge data to evaluate local sea-level rise and the potential impacts on residential communities, infrastructure, and transportation in low-lying coastal regions.

NCDC DATA AND PRODUCTS

There are many different types of useful climate information available. Examples include:

- The *Global Historical Climate Network*, which contains historical temperature, precipitation, and pressure data for thousands of land stations around the world.
- The *Integrated Surface Data* database, which contains climate information for about 10,000 weather stations, with some information dating back as far as 1901.
- Global tropical cyclone positions and intensities in the *International Best Track Archive for Climate Stewardship* (IBTrACS) tropical cyclone database.
- The *Socioeconomic Website Initiative* (SWI), which presents a centralized, organized, and searchable source of information about the economic and social value and application of NOAA's data products, as well as the economic costs of extreme events on the environment and society.
- *Pacific Region Integrated Climatology Information Products* (PRICIP), which involves analyses of historical records collected throughout the Pacific region, and combines these climatological analyses with near-real-time observations to put the current weather into a longer-term perspective. Datasets and information from various coastal observing stations are provided for strong winds, heavy rains, and high seas.

Collaboration between climate scientists and the coastal hazards community is essential in helping to build the necessary bridges that will transform climate science into information that is relevant and credible. Ongoing communication is important to ensure that the information NCDC provides is appropriate and applicable to coastal hazards sector needs. As climate changes in the years ahead and the effects become more noticeable, new information needs will emerge. NCDC will work closely with this sector, attending trade meetings and sponsoring future workshops and conferences, in order to better understand, address, and anticipate these needs.

Additional details about available NOAA products and the economic benefits of these products are provided at:
http://www.economics.noaa.gov

For further information on obtaining NCDC climate services and products related to coastal hazards, please contact:

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NOAA Satellite and Information Service
National Environmental Satellite, Data, and Information Service (NESDIS)

National Climatic Data Center (NCDC)
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